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# **The Effect of Planning and Monitoring as Metacognitive Strategies on Iranian EFL Learners' Argumentative Writing Accuracy**

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## **Abstract**

One of the most problematic areas for foreign language learning is writing. Writing is the most sophisticated and complex achievement of the language system (Lerner, 1997). Writing requires the activation and coordination of orthographic, graphomotor and several linguistic skills including, but not limited to, semantics, syntax, spelling, and writing conventions (Scott, 1999; Singer & Bashir, 2004). With the development of cognitive psychology, metacognition has drawn more and more researchers' attention and provides a new perspective for EFL writing, especially argumentative writing model. Since this strategy is a high-ordered executive skill by its components (planning, monitoring, and evaluating) this study investigated the effects of planning and monitoring skills as metacognitive strategies on Iranian intermediate EFL learners' argumentative writing accuracy. Sixty university students participated in the study. They were randomly assigned to control and experimental groups. They were at the intermediate level of English proficiency. Their language proficiency was determined by Michigan Test of English Language Proficiency (MTELP) (Corrigan, 1979). The experimental group (EG) received metacognitive strategies-based writing instruction whereas the control group (CG) received only the routine writing instruction (Product Approach). After eight weeks of instruction both groups were post tested. Data were submitted to the independent T-Test analysis and the results showed that there was a positive effect in the experimental group's writing performance. The findings have implications for pedagogy as well as for research.

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*Keywords:* planning, monitoring, argumentative writing, product approach

## **1. Introduction**

### *1.1 Cognition versus Metacognition*

While it is a fine line between cognition and metacognition, particularly in terms of strategy training, the distinguishing factor between the two is how the strategy is used (Flavell, 1978; Chien, 2006; Schraw, 1998). In short, cognitive strategies are strategies which are used to solve problems, whereas metacognitive strategies are employed in order to monitor, evaluate, control

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and understand these strategies (Chien, 2006).

Metacognition is defined by Weinert (1987) as “second-order cognitions: thoughts about thoughts, knowledge about knowledge, or reflections about actions (1987, as cited in Hartman, 1998, p. 1) and is differentiated from cognition “in that cognitive skills are necessary to perform a task, while metacognition is necessary to understand how the task was performed (Garner, 1987, as cited in Schraw, 1998, p. 113). Or, in short, “metacognition is the regulation of cognition. That is, learners need to link these metacognitive awareness with their strategic knowledge about what they know (declarative), how they will use the knowledge (procedural), and when and why they can use the knowledge (conditional)” (Tapinta, 2006, p. 14). To illustrate this concept, Flavell (1979) describes a study in which preschool and elementary children studied a set of items until they felt they would be able to recall them perfectly. Older children, once they had indicated that they were ready, showed “perfect recall”, while the younger children usually did not. These results suggest that “young children are quite limited in their knowledge and cognition about cognitive phenomena or in their *metacognition*” (p. 906, *Italics in original*).

### *1.2 Application of Metacognitive Strategies to Writing Instruction*

All writers enter the writing process with some metacognitive knowledge in place. Studies by Devine et al. (1993) have shown that “all writers (L1 and L2) could be characterized as having a metacognitive knowledge base which contributes to their cognitive model of the writing process” (p. 213) and which subsequently has implications on the performance of the writers on the written tasks. Several studies (Kasper, 1997; Chien, 2004) have found correlations between the extent to which students employed metacognitive strategies and their writing performance. Both Wenden (1998) and Schraw (1998) recommend that students need strategies, both cognitive and metacognitive, modeled for them by a teacher as well as knowledge related to the types of strategies available, the “conditions under which these strategies are most useful, and a brief rationale for why one might wish to use them as one method which can be used to promote metacognitive knowledge” (Schraw, p. 119). Another method is to give the students extended practice and reflection, which together “play important roles in the construction of metacognitive knowledge and regulatory skills” (p. 118). Although research into the use of metacognitive strategy training in L2 writing is limited, what research has been conducted seems to support Wenden's and Schraw's recommendations. A study by Chien (2006), though limited in sample size, found a strong correlation between metacognitive reflection and achievement among Chinese ESL students. In the study, students with high task achievement attended more in review, editing and evaluation (i.e. in metacognitive processes) than students with low achievement. Wong & Storey (2006) found that the use of reflective journals before and after actual writing is “useful for arousing and increasing students' awareness of effective writing skills and is significantly related to writing performance” (p. 297). Further studies have indicated the value of reflective tasks in sensitizing students to the demands of writing for specific discourse communities (Hirvela, 1997). A wealth of studies, reviewed by Winograd and Hare (1998, as cited in Carrell et. al), reported significant gains in the specific use of the cognitive strategy taught (Adams, Carnine & Gersten, 1982; Alexander & White, 1984; Baumann, 1984; Garner, Hare, Alexander, Haynes & Winograd, 1984; Hare & Borchardt, 1984; Patching, Kameenui, Carnine, Gersten & Colvin, 1983). Overall, these studies support Mayer's (1998) sweeping statement: “Students who receive writing strategy training show improvements in the quality of what they write” (p. 55).

### *1.3 Approaches in Writing Instruction: Product, Process, Genre*

Over the past 30 years, product and process approaches have been the chief methods of writing instruction in EFL classrooms (Badger & White, 2000). The product-oriented writing approach is typified by establishing a context, modeling, noticing, and analysis of the features (moves, functions, etc) of these models, information transfer, followed by comparisons between the texts. From this point the students can be given controlled practice activities, which would ultimately lead to the learners producing drafts independently (Reid, 1988, as cited in Flowerdew and Peacock, 2001). Badger and White (2000) provide a more concrete example of a typical sequence of the product-approach.

“A process-oriented writing cycle, on the other hand, typically contains the following steps: taking preliminary decisions, composing a rough draft, revising the rough draft, preparing a second draft, further revisions and reworking of drafts, further evaluation and writing the “final draft” (Flowerdew and Peacock, 2001, p. 188).

More recently, the genre approach, focusing much of its attention on the situation and purpose of writing, has gained popularity in writing instruction (Badger and White, 2000). Typically, a genre-approach will begin with an analysis of authentic examples of the target text. This analysis focuses on the macrostructures of the text (i.e. identifying both the obligatory and optional elements and how these are ordered), identifying the cohesive devices employed in the text as well as an analysis of how the register is encoded in the writer's choice of grammar and vocabulary (Thornbury, 2005).

According to Wenden (1991) metacognitive strategies are mental operations or procedures that learners use to regulate their learning. They are directly responsible for the execution of a written task and include three main kinds: planning, evaluating and monitoring. Cognitive strategies are mental operations or steps used by learners to learn new information and apply it to specific learning tasks. They are used to deal with the obstacles encountered along the way. They are auxiliary strategies that aid in the implementation of the metacognitive strategies. In contrast to the metacognitive strategies, the function of cognitive strategies is narrower in scope.

#### *1.4 Metacognition and the writing process*

To be a good writer, one needs not only task specific knowledge and skills, but also metacognitive awareness and knowledge. Flavell (1976) coined the term metacognition to describe the knowledge and awareness of cognitive process, of cognitive strengths and weaknesses, and self-regulation that learners bring to a task. Since writing is such a complex task, how a writer manages to incorporate and juggle all of the processes is reflective of metacognitive and self-regulatory knowledge and strategies. Effective writers use metacognitive awareness and knowledge during each stage of the writing process (Wong, in press). They have a well developed executive or control structure which oversees and manages the overall writing process (Bereiter, 1980); good writers self-regulate and self-monitor their writing performance through internalized self-talk (Dautie, 1985; Englert, 1990; Flower & Hayes, 1980). By engaging in self-talk an individual mediates his/her own thought process during the stages of writing.

According to the definitions and classifications of metacognitive strategies listed above, it is clear that O'Malley and Chamot's definition and classifications are more accurate and more widely accepted. Therefore, O'Malley and Chamot's definitions and classifications are adopted as the basis of this study. The following are more detailed classifications of O'Malley and Chamot's theory.

O'Malley and Chamot held that "planning" is a procedure for conflict resolution among competing action statements that applies to the conditional clause in the production system. In other words, "planning" involves in directing the course of language reception and production. "Planning" includes five strategies: (1) Advance organizers; (2) Directed attention; (3) Selective attention; (4) Self-management; (5) Functional planning. "Monitoring" is a response to ambiguity in comprehending language where an individual selects a best guess of the message's meaning based on available meaning. "Monitoring" can also be described as being aware of what one is doing. There is only one strategy in this subcategory: (6) Self-monitoring. "Evaluation" is mental process conscious inspection of learning outcomes, one's own progress in the new language. This category consists of only one strategy: (7) Self-evaluation. O'Malley and Chamot (2001) concluded that metacognitive strategies involve thinking about the learning process, planning for learning, monitoring the learning tasks, and evaluating how one has learned. The first type, planning, involves two kinds of strategies: advance organization and organizational planning. The next type, self-monitoring involves checking, verifying or correcting one's comprehension or performance in the course of the language task. It involves more specific metacognitive strategies as follows:

(1) Comprehension monitoring; (2) Production monitoring means checking, verifying or correcting one's language production. It is primarily applied in writing and speaking; (3) Auditory monitoring; (4) Visual monitoring; (5) Styling monitoring; (6) Strategy monitoring; (7) Plan monitoring and (8) Double-checking monitoring. The last type, self-evaluation subsumes five metacognitive strategies. They are: (1) Production evaluation; (2) Performance evaluation; (3) Ability evaluation; (4) Strategy evaluation and (5) Language evaluation.

#### *1.5 Argumentative Writing*

Argumentative writing is a crucial skill during the school years and beyond (Nippold, 2000; Crowhurst, 1990). In American society, "the literate, educated person is expected to be able to articulate a position on important matters so as to persuade colleagues, fellow citizens, governments, and bureaucrats" (Crowhurst, 1990, p. 349). Academically, written argumentation helps students acquire knowledge (Driver, Newton, & Osborne, 2000; Schwarz, Neuman, Gil, & Iiya, 2003; Zohar & Nemet, 2002), promotes scientific thinking skills (C. Shanahan, 2004), and enhances comprehension of history and social studies (De La Paz, 2005; Wiley & Voss, 1999).

Furthermore, written argumentation can lead to an increase in intrinsic motivation and problem-solving performance in the academic setting (Chinn, 2006).

Argumentative writing requires students to embrace a particular point of view and try to convince the reader to adopt the same perspective or to perform a certain action (Nippold, Ward-Lonerger, & Fanning, 2005). This form of essay writing requires the

writer to draw upon his or her knowledge of argumentative discourse and create sub goals related to supporting a thesis (Scardamalia&Bereiter, 1986).

Argumentative writing draws upon the various cognitive processes identified within the Hayes (1996) model. In addition, the writer must also aware of the various elements that are specific to the genre of argumentation. Considering the above mentioned concepts, this study aims at answering and analyzing the following research questions:

- 1) Do metacognitive strategies (Planning and Monitoring) effectively enhance students' Argumentative writing accuracy?
- 2) Which has greater effect on students' actual writing performance, metacognitive strategies or product approach?

## 2. Research Methodology

### 2.1 Participants

This research involved 60 university EFL learners who were in the third year (semester 5) of their study in Ardabil Islamic Azad University in Iran. . They were at the intermediate level of English proficiency. Their language proficiency was determined by Michigan Test of English Language Proficiency (MTELP) (Corrigan, 1979). The class met for about two hours every week for eight weeks.

### 2.2 Instruments

In this study, there were various instruments which included Michigan Test of Language Proficiency (MTELP), writing tests, pre-test, post-test, and course materials that assumed as the source book of their current study.

### 2.3 Procedure

Sixty university students participated in the study. They were randomly assigned to control and experimental groups. They were at the intermediate level of English language proficiency. Their language proficiency was determined by Michigan Test of English Language Proficiency (MTELP) (Corrigan, 1979). Since they had been placed in two different intact classes in advance by their educational program, one class was assigned as the control and the other as the experimental group. The experimental group (EG) received metacognitive strategies-based writing instruction whereas the control group (CG) received only the routine writing instruction (Product Approach). After eight weeks of instruction both groups were post tested. Data were submitted to the T-Test analysis. A language learning proficiency test (Michigan Test of English Language Proficiency (MTELP) (Corrigan, 1979), was administered to select intermediate Iranian EFL learners in Islamic Azad University, Ardabil Branch. After this, the pretest of a writing performance was given to all participants in this study. A topic of writing performance was given to write about 150 words in an essay format. Then, the instruction on the metacognitive learning strategies for the experimental group was considered in 40 minutes. This strategy composed of five stages based on CALLA model (Cognitive Academic Language Approach) by Chamot and O'Malley (1994) and they were as follows:

**Preparation:** In the phase of preparation, the researchers first helped students to identify what they knew about the contents and strategies, what gaps in prior knowledge should be addressed. Elaboration, advance organization and selective attention are most commonly taught and practiced in this stage. Then the teacher offered metacognitive writing strategies to students and explained the importance of it and helped students to set positive, practical, feasible goals.

**Presentation:** In this phase, the metacognitive strategies in writing were presented and explained to students in English which were supported by contextual clues. The researchers first handed out a list of the metacognitive strategies in writing including self-planning, self-monitoring and self-evaluation. Then, the characteristics, usefulness, and applications of the strategy were explicitly explained through examples.

**Practice:** Students were offered opportunity of practicing new strategies with authentic writing activities in this stage. They were required to recall writing strategies including cognitive and metacognitive ones that were presented in the presentation stage; then students began to plan their writings according to self-planning strategy.

**Evaluation:** In this phase, students were asked to check the level of their writings so that they could well understand what they had learned about new strategies, skills and what needed to be reviewed. Self-evaluation activities included self-questioning; debriefing discussions after strategies practice; learning Blogs in which students recorded the results of their learning strategies applications; checklists of strategies used; and open-ended questionnaires in which students expressed their opinions about the usefulness of particular strategies. We carried the evaluation activities through three stages: self-evaluation, peer-evaluation and teacher-evaluation.

**Expansion:** This phase provides the participants with opportunities to exercise higher order thinking skill (Chamot and O'Malley:1990). In this phase, students were inspired to apply the strategies that they thought to be the most effective; to transfer new strategies to different context; and to devise their own individual combinations and interpretations of metacognitive strategies. This phase aimed to help students to practice, consolidate, evaluate, automate and internalize the strategies that they just learned which mainly include self-planning, self monitoring and self-evaluation.

### Writing Tests

All participants from the experimental and control groups were required to take one pre-test and one post- writing test to determine whether there were gains in writing performances over eight weeks of research. The test provided data for measuring participants' writing performance. A pre-test was carried out before the experiment so as to confirm that the writing abilities of these two classes were at the same level. The topic list of the writing task is selected to show the rate of participants' performance in different elements of paragraphs.

### 3. Data Analysis

Statistical analysis of T- Test was used to test possible differences between the two groups at the beginning and the end of the study. In order to establish the homogeneity of the two groups in terms of writing knowledge, an independent sample t-test was carried out to examine the differences between the performances of the two groups on the writing test before the meta-cognitive strategy training.

Table1.Report pre CE (pretest for Control & Experimental Group)

Group	N	Mean	Std. Deviation
Control	30	10.7000	3.052
Experimental	30	10.9000	3.673
Total	60	10.8000	3.318

As we see in table 1. The mean score for experimental group is  $M=10.90$  and  $SD=3.673$ . The mean score for control group  $M=10.70$  and  $SD= 3.052$ . Simply, the results show that the mean scores of two groups are not meaningfully different according to writing knowledge at the beginning of the study.

Both groups took part in a posttest after completing the training in which only experimental group received metacognitive strategy training. The results of the writing in two groups were compared by using independent sample t-test statistical procedure.

Table2.Report post CE (posttest for Control & Experimental Group)

Group	N	Mean	Std. Deviation
Control	30	10.266	2.690
Experimental	30	12.400	3.616
Total	60	11.333	3.337

As shown in table 2. The mean scores of the experimental group ( $Mean=12.400$ ) are significantly different from the control group ( $Mean=10.266$ ). Table 2. Clearly shows that explicit instruction has impacted on experimental group writing ability in post test, but it had no effect on control group's writing ability before and after explicit instruction on metacognitive learning strategies.

Also, an independent sample t-test was carried out to examine the differences between the performance of the experimental groups in pre test and post test on the writing test.

Table 3.T-TEST analysis

Differences		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre	1.5000	60	.504222	.6509
	post	.5333	60	1.52345	.19668

  

Paired Samples Correlations		N	Correlation	Sig.
Pair 1	pre & post	60	.640	.000

Table 4.Paired Samples Test

Paired Differences						
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences		t
				Lower	Upper	
Pair 1 pre-post	.96667	1.26178	.16290	.64071	1.29262	5.934

The tables show that the mean scores for experimental group in pretest and posttest are clearly significant (the mean scores of the experimental group in pretest and posttest are 10.90 and 12.40 respectively). They also provide valuable information. Observed t is 5.934. Fortunately the observed t is significantly great in order to support the research hypothesis. Because the critical t for the degree of freedom 59 is 2. Probability of zero means that significant t even less than .05- that is  $\alpha=0$  rather than .05.

#### 4. Discussion

This section discusses the results of the research by direct reference to the questions raised in the study.

**Question One:** Do metacognitive strategies (Planning and Monitoring) effectively enhance students' Argumentative writing accuracy?

Preceding studies have shown that meta-cognitive learning strategies are the strategies which differentiate between effective and ineffective learners (e.g. Anderson, 2002). Taking into account the results of the studies carried out in this regard, one could state that meta-cognitive learning strategies are paramount in language learning in general and in improving the writing skill in particular. O'Malley and Chamot's (1990) study manifested that meta-cognitive learning strategies improved most EFL students' speaking ability. As for the writing skill, they remarked that these strategies had positive effect on some writing tasks.

However, the results of the present study revealed that explicit instruction has been rendered effective to intermediate language learners. That is to say, intermediate language learners use these strategies consciously in their writing skill. So there is positive relationship between meta-cognitive strategy and EFL writing achievement.

**Question Two:** Which has greater effect on students' actual writing performance, metacognitive strategies or product approach?

The present study shows that intermediate language learners are aware of meta-cognitive learning strategies and utilize them consciously. This is because instruction could bring a change in the experimental group. This is in line with the suggestion by O'Malley and Chamot (1990) that intermediate language learners in general employ more meta-cognitive learning strategies.



Therefore, instructing intermediate language learners in these types of strategies to promote their writing ability would be effective (Tables 2and 3).

## 5.Conclusion and Implications

This study began with the assumption that teaching meta-cognitive learning strategies could enhance the intermediate language learners' Argumentative writing skill ability. The instruction lasted for eight weeks. During this time, the researchers employed meta-cognitive learning strategies and taught the participants in the experimental group how to use them in their writing skill. The participants in the control group, on the other hand, did not receive any instruction on the use of these strategies during their writing skill practice. After the posttest, the results indicated that the instruction of meta-cognitive learning strategies affect the intermediate language learners' writing skill. That is, the writing ability of the experimental group who hadmade use of meta-cognitive learning strategies surpasses that of the control group. The current study seems to demonstrate metacognition as a significant predictor of English written proficiency. Since implementing metacognitive tasks means transferring some responsibilities to learners, which in turn might increase their pressure, particularly on the less proficient ones, it is therefore suggested that explicit and direct instruction and modeling, and guided practice be consistently provided. Also, when teaching EFL writing metacognitively, the instructor should be supportive and encouraging to learners, and attend to their voices from different venues to monitor, evaluate and regulate the teaching strategies employed. In addition, the situation of taking metacognition into practice might be affected by cultural factors and need more research in this aspect. Promoting students' metacognitive awareness in an integrative EFL writing class implies that the process and the product approaches are not opposite but complementary (Devine, 1993). It also helps teachers and students to reflect on and regulate their efforts, thus making an EFL writing class more effective. However, it is suggested that as students' knowledge of and familiarity with process-product approaches accrue, genre approaches can also be incorporated as, in the words of Badger & White (2000: 155), "an extension of product approaches" to link writing with different social contexts. Argumentative writing is an important yet challenging academic skill for secondary and postsecondary students to master. A comprehensive examination of students' writing skills, particularly on persuasive writing tasks, sheds greater light into the developmental cognitive processes of argumentative writing.

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